

WHAT IS CLAIMED IS:

1. A method for using a biocompatible, injectable aqueous solution in high intensity ultrasound energy assisted surgery at greater than $10 \text{ W/cm}^2\text{CW}$ at 20-100 kHz with an amplitude of 60-320 μ , wherein said solution comprises a gas selected from the group consisting of carbon dioxide, nitrogen, or mixtures thereof.
2. The method of claim 1, wherein the gas is at a concentration which is higher than the concentration in a solution which is in equilibrium with air at 25°C and 98.1 Kp (1 atm) pressure.
3. The method of claim 1, wherein said surgery is lipoplasty.
4. The method of claim 1, wherein said gas is carbon dioxide.
5. The method of claim 1, wherein said gas is passed through said solution at a flow rate of from 10 to 500 ml/min.
6. The method of claim 5, wherein the flow rate is from 50 to 200 ml/min.
7. The method of claim 6, wherein the flow rate is approximately 100 ml/min.
8. The method of claim 1, wherein said solution further comprises a water soluble scavenger.
9. The method of claim 8, wherein said water soluble scavenger is vitamin C.

10. A method for reducing and limiting cavitation in ultrasound assisted lipoplasty comprising, irrigating an area of target fatty tissue with an irrigating solution, inserting a probe into said area of fatty tissue; ultrasonically vibrating said probe at standard conditions creating localized tissue separation and frictional heat; emulsification of at least some of said fatty tissue by mechanical and sonic vibrations, so as to provide for removal of said fatty tissue; emulsifying said fatty tissue; and aspirating the emulsified fatty tissue by applying suction, characterized in that said irrigating solution further comprises a gas selected from the group consisting of carbon dioxide, nitrogen and mixtures thereof.

11. A method for removing target tissue from a patient comprising: irrigating an area of target tissue with an irrigating solution, inserting a probe into said area of target tissue. ultrasonically vibrating said probe at standard conditions creating localized tissue separation and frictional heat; emulsifying at least some of said target tissue by mechanical and sonic vibrations, so as to provide for removal of said target tissue; emulsifying said target tissue; and evacuating the emulsified target tissue by applying suction, characterized in that a gas selected from the group consisting of carbon dioxide, nitrogen and mixtures thereof is introduced into said irrigating solution in the area exposed to high intensity ultrasound energy.

12. A method for removing fatty tissue from a patient comprising: irrigating an area of target fatty tissue with an irrigating solution, inserting a probe into said area of fatty tissue; ultrasonically vibrating said probe at standard conditions creating localized tissue separation and frictional heat; emulsifying at least some of said fatty tissue by mechanical and sonic vibrations, so as to provide for removal of said fatty tissue, emulsifying said fatty tissue; and evacuating the emulsified fatty tissue by applying suction, characterized in that a gas selected from the group consisting of carbon dioxide, nitrogen and mixtures thereof is introduced into said irrigating solution in the area sonicated by said probe.

13. A method for removing fatty tissue from a patient according to claim 12 wherein said gas is present in an amount sufficient to reduce cavitation in the area of sonication.

- 14. A method according to claim 10 – 13, further comprising introducing a water soluble scavenger into said irrigating solution.
- 15. A method according to claim 14, wherein said water soluble scavenger is vitamin C.
- 16. A method according to claim 15, wherein said gas is carbon dioxide.